

AMENDMENT UNDER 37 C.F.R. § 1.111

U.S. Application No.: 10/516,455

Attorney Docket No. Q84452

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (previously presented): A method of etching a substrate by an inductively-coupled plasma, the method comprising:

 placing the substrate in a reaction chamber;

 establishing an atmosphere of an appropriate gas in the reaction chamber at a suitable operating pressure;

 biasing the substrate; and

 exciting the gas in the reaction chamber by a radiofrequency excitation electromagnetic wave passing through a leakproof wall of dielectric material in order to generate a plasma, wherein the method further comprises:

 establishing the power of a plasma excitation electromagnetic wave progressively, wherein a gas that is inert for the substrate is injected into the reaction chamber and the power of the plasma excitation electromagnetic wave is raised progressively until the appropriate nominal power is reached, thereby forming an inert gas plasma which progressively heats up the leakproof wall of dielectric material, and

 injecting an active gas into the reaction chamber in order to replace the inert gas and perform etching by the plasma of the active gas.

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2. (previously presented): A method according to claim 1, wherein the progressive increase in the plasma excitation power is programmed so as to ensure that the thermal shock applied to the leakproof wall of dielectric material by the inert gas plasma remains below a wall-destroying threshold.

3. (currently amended): A method according to claim 1, wherein the progressively establishing the plasma excitation power is undertaken solely at the beginning of reaction chamber operation after a period of inactivity, and is followed by alternating active etching steps and passivation steps during which the temperature of the leakproof wall of dielectric material remains in a range of values that is sufficiently narrow to avoid any destructive thermal shock being applied to the leakproof wall of dielectric material.

4. (currently amended): A method according to claim 1, wherein the active-etching by a plasma of the active gas comprises a succession of etching periods using a fluorine-containing gas, and passivation period using an etching passivation gas.

5-10. (canceled).